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ABSTRACT

This paper on readability begins with a brief discussion of comprehension, including a definition, and then lists factors that influence comprehension, such as knowledge of vocabulary, long passages that are ambiguous, digressions, and unnecessary restatements. The paper then explores readability and presents a graph for estimating readability and instructions for using it. Finally, the paper focuses on cloze procedure, explains when and why cloze procedure can be used, and gives directions for constructing, administering, and scoring a cloze test. (TJ)

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CLASSROOM MATERIALS: HOW READABLE ARE THEY IN RELATION TO YOUR STUDENTS' ABILITY?

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Jeannette Louise Miccinati

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

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I. COMPREHENSION

What is Comprehension?

Levin and Gibson (1975) state that there has been little progress toward a theory of comprehension. However, there is agreement that comprehension is not a unitary mental skill or operation.

What does comprehension consist of? It may be a search for structure in what is read. If so, this requires thinking about words, phrases, sentences and paragraphs, not just saying them. New information may "cluster" around prior knowledge, add to it and even change it. If no prior knowledge is available, it may simply be stored for later use. To do this the reader must understand the author's intent, and concepts presented. Only readers who can "cluster" or organize information, whether new or old, will be successful in understanding what is read. This "clustering" is a way to reduce the complexity of information.

What Other Factors Influence Comprehension?

Research has shown that other factors influence understanding (comprehension).

1. At the elementary level, the use of conjunctions.
2. Clauses introduced by however, thus, which, although, yet.
3. Subject matter that is inherently difficult.
4. Placement of modifying phrases and clauses.
5. Ease of identification of antecedents of pronouns.
6. The logical sequence of sentences.
7. The main ideas in paragraphs.
8. Multiple meanings and grammatical usage of words.
9. Individual student's knowledge of vocabulary.
10. Content factors:
    a. Student's familiarity with the concept.
    b. The associations among the concepts presented.
    c. The use of concreteness or imagery.
    d. The organization of the text (the logical structure and style of writing).
11. At the college level:
    a. Long passages which are vague and ambiguous, using words such as: like, rather, any number of, quite a bit.
    b. The use of probability words such as: might, possibly, sometimes.
    c. Irrelevancy.
    d. Digressions and unnecessary restatements.

To be successful the reader must be able to select the right elements or concepts and put them together sequentially and relate them logically. William James says that, "no word in an understood sentence comes to consciousness as a mere noise. We feel its meaning as it passes."

II. READABILITY

Background

Evidence of interest in clear speech and readability goes as far back as religious writings. Even then there was concern with communicating ideas. Klare (1963) reports that in the 19th century vocabulary and familiar words were counted in relation to reading difficulty. In the 1920's and early 1930's formulas tended to use vocabulary range, the number of prepositions or polysyllabic words and gave only an apporximate rating. After that the formulas became more detailed, more accurate and reliable, but were more difficult to calculate. This was followed by formulas emphasizing efficiency and simplicity. Around the middle 1900's there was a shift to develop specialized formulae for purposes, such as children's readers, or abstract material. Recently vocabulary and sentence length have been used to formulate objective measures of readability. Some methods involve elaborate hand or computer calculations. Non-traditional readability approaches have used sentence completion (cloze procedure), and linguistic theory.

What is Readability?

Some authorities say that it is the matching of reader and text. Dale-Chall (1948) define it as

> ...the sum total...of all those elements within a given piece of printed material that affects the success which a group of readers have with it. The success is the extent to which they understand it, read it at optimum speed and find it interesting.

Understanding implies comprehension. Many readability experts believe that comprehension, speed of reading and a reader's interest interact to affect readability. Not everyone agrees with this notion.

Why Use Readability Formulas?

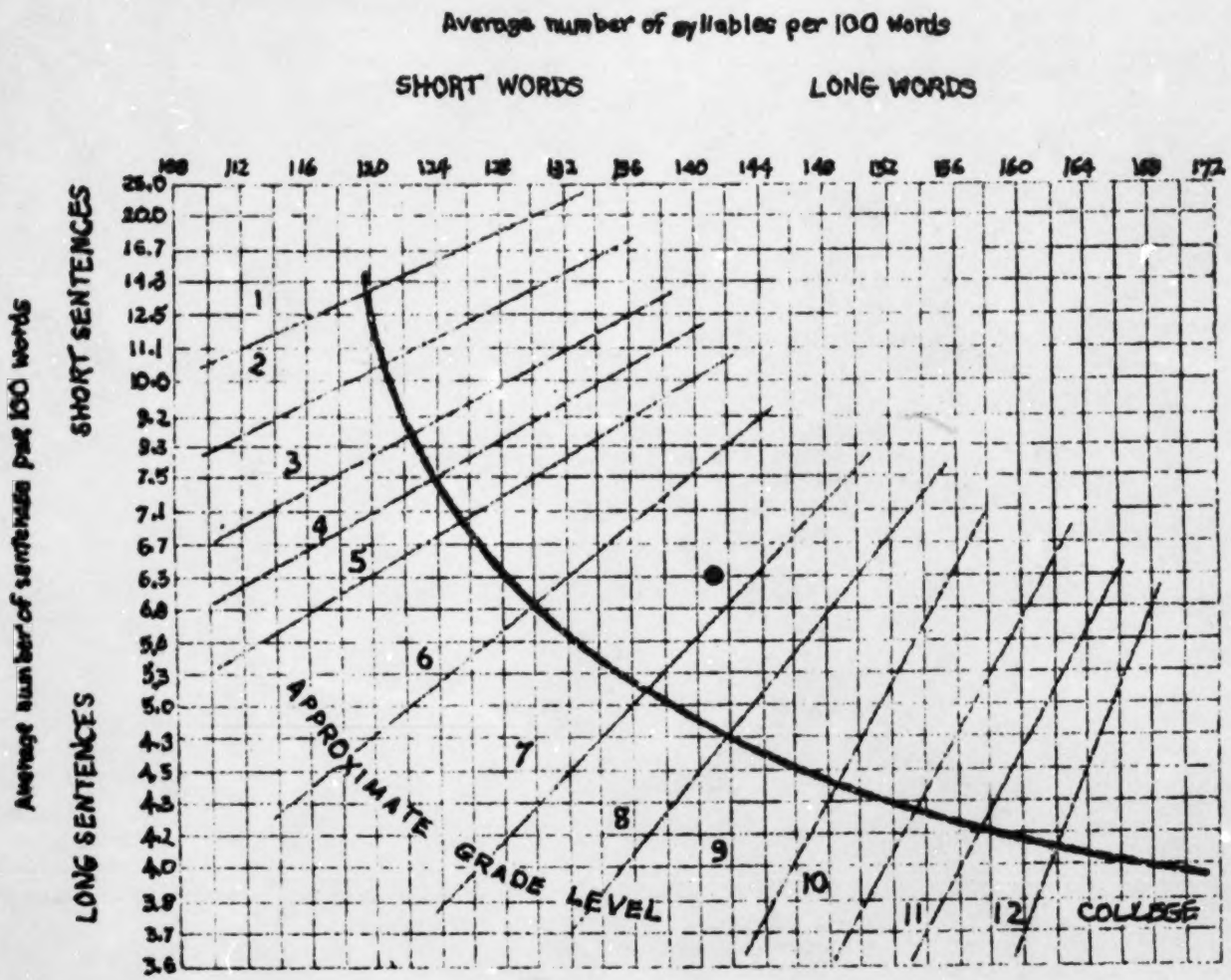
1. They are a good measuring stick of the difficulty of a text. However, not all formulas provide a means to measure the variability of the difficulty of a text. Yet they do help teachers select appropriate classroom reading materials.

2. Librarians can assist readers if they know the difficulty level of books. (Books at different levels can be color-coded).

3. Publishers and authors can prepare texts for students of all ages and control the level of reading difficulty.

GRAPH FOR ESTIMATING READABILITY

by Edward Fry, Rutgers University Reading Center, New Jersey



DIRECTIONS: Randomly select 3 one hundred word passages from a book or an article. Plot average number of syllables and average number of sentences per 100 words on graph to determine the grade level of the material. Choose more passages per book if great variability is observed and conclude that the book has uneven readability. Few books will fall in gray area but when they do grade level scores are invalid.

EXAMPLE:

	Syllables	Sentences
1st Hundred Words	124	6.6
2nd Hundred Words	141	5.5
3rd Hundred Words	158	6.8
AVERAGE	141	6.3

READABILITY 7th GRADE (see dot plotted on graph)

ADDITIONAL DIRECTIONS FOR WORKING READABILITY GRAPH

1. Randomly select three sample passages and count out exactly 100 words beginning with a beginning of a sentence. Don't count numbers. Do count proper nouns.

2. Count the number of sentences in the hundred words estimating length of the fraction of the last sentence to the nearest 1/10th.

3. Count the total number of syllables in the 100-word passage. If you don't have a hand counter available, an easy way is to simply put a mark above every syllable over one in each word, then when you get to the end of the passage, count the number of marks and add 100.

4. Enter graph with average sentence length and number of syllables; plot dot where the two lines intersect. Area where dot is plotted will give you the approximate grade level.

5. If a great deal of variability is found, putting more sample counts into the average is desirable.

Sample Passage

Although pictorial drawings are used to some extent in special cases, the basis of all working drawings is orthographic projection. Thus, to represent an object completely, at least two views are ordinarily needed, often more. The only general rule is: make as many views as are necessary to describe the object clearly--and no more. Instances may occur in which the third dimension is so evident as to make one view sufficient, as, for example, in the drawing of a shaft or bolt. In other cases, perhaps a half-dozen views will be required to describe a piece completely. Sometimes half, partial, or broken views can be used to advantage.

French, Thomas, Verck, Charles: A Manual of Engineering Drawing for Students and Draftsmen. New York: McGraw-Hill Book Company, 1963, p. 394.

COMMONLY USED READABILITY FORMULAS

1. Dale-Chall Formula (for 4th through College Level)
   Dale, Edgar and Chall, Jeanne.
   "A Formula for Predicting Readability", Educational Research Bulletin. January 21 and February 17, 1948, pp. 11-20 and p. 37-54. (See also February 13, 1952, pp. 43-47 for quick calculation graph).

2. Flesch Reading Ease Formula
   Flesch, R. F. "A New Readability Yardstick", Journal of Applied Psychology, 32: 221-33, June, 1948, and December, 1950. (measures level of abstraction of material).

3. Fog Index by Robert Gunning (for magazines and newspapers).

4. SMOG Formula by G. Harry McLaughlin
   Journal of Reading, May, 1969, p. 639 (Tends to grade books high).

5. Spache Formula (for primary grades, 1-4th) see bibliography page.

II. Cloze Procedure

Background

The Cloze procedure was developed by Wilson Taylor (1953). The word Cloze comes from the concept closure which means filling in the parts of an incomplete sentence or of an incomplete picture. If one understands the sentence or recognizes part of the picture, then the missing portion can be fitted in.

When to Use the Cloze Procedure and Why

1. To test comprehension. This method will give teachers an idea of how well students understand what they read.

2. To teach comprehension.

3. To use as an informal readability index. It will tell teachers how students are functioning in their present textbooks or in proposed new textbooks.

4. To teach word recognition through use of words in context.

5. To teach sentence structure. This enables a student to recognize when his written sentences are complete or incomplete.

6. To teach students auditory closure. Students can learn to fill in the missing parts of what is not heard if given practice using this procedure orally.

The Cloze Procedure

The following presentation of this method is for the purpose of assisting students ability to read and understand a particular text. It will enable a teacher to survey the functioning of a total classroom in any number of textbooks. From scores obtained, modifications can be made in teaching or in actual use of particular texts.

Students must have some preparation for this technique. If used as a testing or teaching device, it will fail unless students are prepared. They will need to be led through the exercise once or twice before it is used.

CLOZE TECHNIQUE

Directions

Cloze Screening: Directions for construction, administration, scoring and recording, and interpretation of cloze readability.

Construction:

1. Select a reading passage of approximately 250-275 words from material that you will be assigning to your students. This should be material that they have not yet read.

2. Leave the first sentence intact. Starting with the second sentence, select at random one of the first five words. As you type the passage on a ditto master, leave an underlined blank 15 spaces long.

3. Delete every fifth word thereafter, until you have a title of 50 underlined blanks. Finish that sentence. Delete every 10 words for material which contains many facts.

4. Type the last sentence intact.

Administration:

This can be easily administered by individual teachers within their own classrooms through the following directions:

1. Students are not to use textbooks in completing the cloze exercises.

2. Before passing out the passage, inform students that they will be taking a test that will try to measure the difficulty of their class reading materials. Show them how the cloze works on the board with sample sentences such as, "It's dark in here. Please turn on the _____ _____." Or, "The man _____ down the stairs." Emphasize to students that they can get many clues from the context of the reading passage that will help them determine words that fit. Have them read silently the entire passage first without filling in the blanks. This will give them an overall idea of what is in the passage and clues for words.

3. Allow students as long as they need to complete this. (Many should finish early.)

Scoring and Recording:

1. Count as correct every exact word students supply. Do not count synonyms judged to be satisfactory. Counting synonyms will not change the scores appreciably, but it will drive you crazy trying to judge the appropriateness of "almost" answers, and it will make it more difficult to correct.

2. Multiply the total number of exact word replacements by two in order to determine the student's cloze percentage score. There should be 50 blanks.

3. For each class of students, record the cloze percentage scores on a single sheet of paper. Students' names and scores should be listed under one of the three columns as they appear on the next sheet.

Alternatives:

1. For students having great difficulty reading, use a shorter passage that they can manage -- one with 20 blanks.

2. If you should decide to accept synonyms, decide before correcting papers which ones will be acceptable

CLOZE TECHNIQUE

Scoring--Recording Form

Subject_____

Period _____

Teacher_____

Below 40%	Between 40% and 60%	Above 60%

"Trouble" (Frustration Level)	"Functioning" (Instructional Level)	"Easy" (Independent Level)

Example I, Cloze Readability Technique, removed due to copyright restrictions. Richert, G. Henry, Meyer, Warren G. & Haines, Peter G. Retailing Principles and Practices. New York: Gregg Division/McGraw-Hill Book Company, 1962, p. 281.

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